

exchanger means for exchanging heat between the coolant and the supply of air supplied into said chamber, and (iv) an electric heater having a temperature sensor for heating the supply of air at a predetermined temperature, wherein

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the refrigerant is circulated between said refrigerator and said first heat exchanger, and wherein the coolant comprises a liquid and is circulated between said first and second heat exchangers.

REMARKS

Claims 1, 2 and 4-9, 11 and 18-20 are presented for consideration, with Claim 1 being independent.

The specification has been amended to provide additional information regarding the trademark disclosed on page 6. In addition, Claim 1 has been amended in response to the rejection under 35 U.S.C. §112, second paragraph, discussed below. Additional cosmetic changes have been made to selected dependent claims as well. Finally, Claim 21 has been added to provide an additional scope of protection.

The amendments to the claims as shown above are submitted to overcome the objection to Claim 11 and the rejections of the claims under 35 U.S.C. §112, second paragraph:

Claims 1, 2, 4, 5, 7-9, 11 and 18-20 stand rejected under 35 U.S.C. §103 as allegedly being obvious over Endo '816 in view of Tyler '477. In addition, Claims 1, 2, 4-9, 11 and 18-20 were rejected under 35 U.S.C. §103 as allegedly being obvious over Crawford '878 in view of Tyler. These rejections are respectfully traversed.

Applicant's invention as set forth in Claim 1 relates to an apparatus comprised of chamber enclosing equipment, and an air conditioner for controlling a supply of air supplied

into the chamber. The air conditioner includes a refrigerator using a refrigerant, a first heat exchanger for exchanging heat between the refrigerant and a coolant, a second heat exchanger for exchanging heat between the coolant and the supply of air supplied into the chamber, and an electric heater having a temperature sensor for heating the supply of air at a predetermined temperature. As claimed, the refrigerant is circulated between the refrigerator and the first heat exchanger, with the coolant comprising a liquid and being circulated between the first and second heat exchangers.

Before discussing Endo, Applicant wishes to comment on the remarks in paragraph 3 of the Office Action regarding Applicant's so-called "functional" language. It is respectfully submitted that the use of functional language is permissible and must be evaluated and considered for what it fairly conveys to a person of ordinary skill in the art (see M.P.E.P. §2173.05(g)). It is submitted, therefore, that the claimed functions of the first and second heat exchangers and the heater should be given patentable weight.

As discussed in the previous Amendment of April 26, 2002, Endo relates a temperature control system for an exposure apparatus in which a common refrigerant is used to cool both air and liquid. With reference to the figure, the temperature control system 4 uses a liquid medium to control the temperature of a projection lens, and a separate temperature control system 3 uses air to control the temperature of chamber 2. The Office Action reads Endo to teach a cooler 20 as a first heat exchanger, and coolers 8 or 14 as a second heat exchanger.

In contrast to Applicant's claimed invention, however, the coolers 8 or 14 do not comprise a second heat exchanger as recited in Applicant's Claim 1. In Claim 1, the second heat exchanger exchanges heat between a coolant and a supply of air. This is not accomplished by the coolers 8 or 14 in Endo. Further, Endo fails to provide a refrigerant circulating between

the refrigerator and the first heat exchanger and a liquid coolant circulating between the first and second heat exchangers. These features of Applicant's invention should also be given patentable weight and serve to further distinguish the claims from Endo.

The secondary citation to Tyler was relied upon for its teaching of an electric heater. Tyler fails, however, to compensate for the deficiencies in Endo discussed above. Therefore, the proposed combination of Endo and Tyler, even if proper, still fails to teach or suggest Applicant's claimed invention.

Accordingly, reconsideration and withdrawal of the rejection of Claims 1, 2, 4-9, 11 and 18-20 under 35 U.S.C. §103 is respectfully requested.

The other primary citation, to Crawford, relates to an air conditioning system in which an air conditioning unit provided in a space 7 supplies air to a room 6. As understood, the Office Action asserts that Crawford includes a refrigerator, a first heat exchanger 33, a second heat exchanger 26, and reheating coils 45 analogous to Applicant's claimed heater. In Crawford, however, the reheating coils 45 are for heating ground water forced from pipeline 16 through pipe 44. The reheating coils in Crawford are not for heating the supply of air at a predetermined temperature as recited in Claim 1 of Applicant's invention.

The secondary citation to Tyler, which is relied upon for its teaching of an electric heater, fails to compensate for the above discussed deficiencies in Crawford. Therefore, the proposed combination of Crawford and Tyler, even if proper, still fails to teach or suggest Applicant's claimed invention. Reconsideration and withdrawal of this rejection of Claims 1, 2, 4-9, 11 and 18-20 under 35 U.S.C. §103 is thus respectfully requested.

Therefore, it is submitted that Applicant's invention as set forth in independent Claim 1 is patentable over the cited art. In addition, dependent Claims 2, 4-9, 11 and 18-20 set

forth additional features of Applicant's invention. Independent consideration of the dependent claims is respectfully requested.

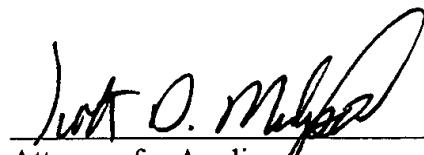
In addition, new Claim 21 is also submitted to be patentable over the cited art.

Claim 21 relates to an apparatus that includes a chamber enclosing equipment, and an air conditioner for controlling the supply of air supplied into the chamber. The air conditioner includes a refrigerator using a refrigerant, first heat exchanger means for exchanging heat between the refrigerant and a coolant, second heat exchanger means for exchanging heat between the coolant and the supply of air supplied into the chamber, and heater means for heating the supply of air at a predetermined temperature. The refrigerant is circulated between the refrigerator and the first heat exchanger means, with the coolant comprising a liquid and being circulated between the first and second heat exchanger means.

In view of the foregoing, reconsideration and allowance of this application is deemed to be in order and such action is respectfully requested.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



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DC_MAIN 113452 v.1



Application No.: 09/536,637
Attorney Docket No.: 00684.002985

VERSION WITH MARKINGS TO SHOW CHANGES MADE TO SPECIFICATION

The paragraph starting at page 6, line 3 and ending at line 17 has been amended as follows:

A refrigerant to be used with a refrigerator may function to cool a coolant, in a first heat exchanger (evaporator), and the cooled coolant may be introduced into a second heat exchanger, to cool an air-conditioning air. The coolant may comprise a liquid such as a pure water, an ethylene glycol aqueous solution, or a PFC liquid, for example, which may have a large heat capacity as compared with a refrigerant (e.g., Flon (or Freon, i.e., chlorofluorocarbon) substitute Flon, propane, etc.) to be used with the refrigerator. Also, because it is a liquid, any pressure change does not directly cause a temperature change. For these reasons, any temperature change in the refrigerant may be sufficiently smoothed by the coolant having a large heat capacity.

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NOV 01 2002
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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

1. (Three Times Amended) An apparatus, comprising:
a chamber enclosing equipment; and
an air conditioner for controlling a supply of air supplied into said
chamber, said air conditioner including (i) a refrigerator using a refrigerant, (ii) a first heat
exchanger for exchanging heat between the refrigerant and a coolant, (iii) a second heat
exchanger for exchanging heat between the coolant and the supply of air supplied into said
chamber, and (iv) an electric heater, having a temperature sensor, for heating the supply of air at
a predetermined temperature, wherein

the refrigerant is circulated between said refrigerator and said first heat
exchanger, and wherein the coolant comprises a liquid and is circulated between said first and
second heat exchangers.

4. (Amended) An apparatus according to Claim 1, wherein said first
[heater] heat exchanger comprises an evaporator.

11. (Three Times Amended) An apparatus according to Claim 1, wherein
said equipment [comprises one] is selected from a group consisting of [an] exposure equipment,
[an] inspection equipment and [a] measuring equipment.